



“SAFE ROADS in the SAFE SYSTEM APPROACH” (Part 1)

- Safe System Approach
(the key for managing of road safety)

Hans-Joachim Vollpracht

Dr Dejan Jovanov

Rajko Branković

20-24 June 2016



What is the “Safe System” approach to road safety ?

The “Safe System” approach advocates for a safe **road system, better adapted to the physical tolerance of its users.**

The Safe System was **officially endorsed by the Australian Transport Council in 2004** and adopted by all Australian state and territory road authorities.

The **setting of speed limits** is now based on this approach so that avoiding death and serious injuries, becomes a priority.



History of “Safe System” approach

Australia’s Safe System approach **shares principles** in common with well known national strategies such as **Sweden’s Vision Zero** and the **Netherlands’ Sustainable Safety** approaches.



Sweden's Vision Zero approach

Vision Zero was adopted by Sweden in 1997 and has the long term goal of eliminating death and serious injury from the road transport system.

Under this approach, it is unacceptable to trade off human life and health for other benefits of the transport system (eg. mobility).



If you have
a collision
driving at:

90 km/h = fall from **X floor**

70 km/h = fall from **VI floor**

50 km/h = fall from **III floor**

30 km/h = fall from **I floor**





The Netherlands' Sustainable Safety approach

The Sustainable Safety approach was launched in the Netherlands in the early 1990's.

It aims to prevent road crashes or at least minimise their severity while allowing for human capacities and limitations.

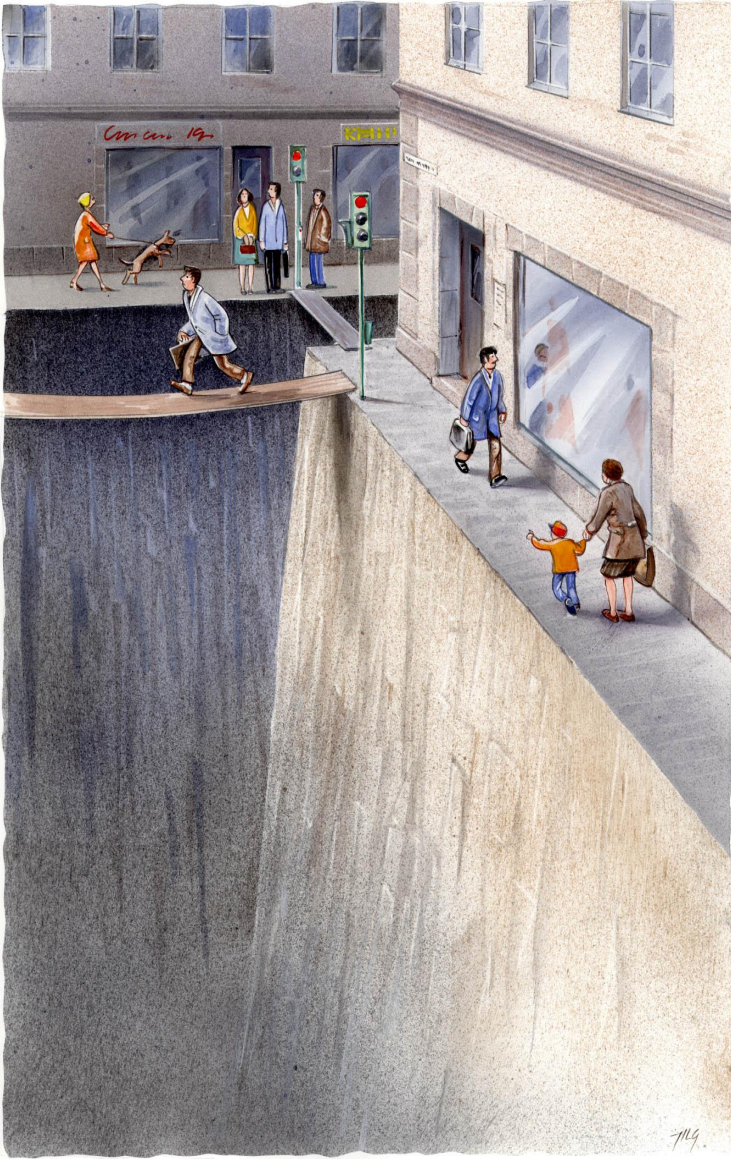
The approach recognizes that human beings are susceptible to injury and prone to errors.

Sustainable Safety aims to prevent these errors as far as possible or to reduce their consequences by allowing for human limitations in designing the traffic system.



Crossing a street or
walking on the plank?

What is safer?





Australia's Safe System approach

Australia's Safe System approach reflects international best practice as defined in the Organisation of Economic Cooperation and Development's (OECD) landmark report Towards Zero: Ambitious Road Safety Targets and the Safe System Approach.

This report was prepared with substantial involvement of Australian road safety officials and practitioners. The Safe System approach represents a significant shift in thinking about road safety.

The Safe System will deliver reductions in deaths and severity of injuries by coordinating the management of all the components of the transport system that impact on safety.



You are driver of the red car:

Q: What should be the speed limit in this case?

A: 30 50 70 90



The same road elements:

- Narrow traffic lane (<3 m);
- Curve;
- Hill/mountain on the left side;
- No safety barrier on the right side

Q: Speed limit?

A: 30 50 70 90

What is the conclusion?



Main principals of the Safe System approach

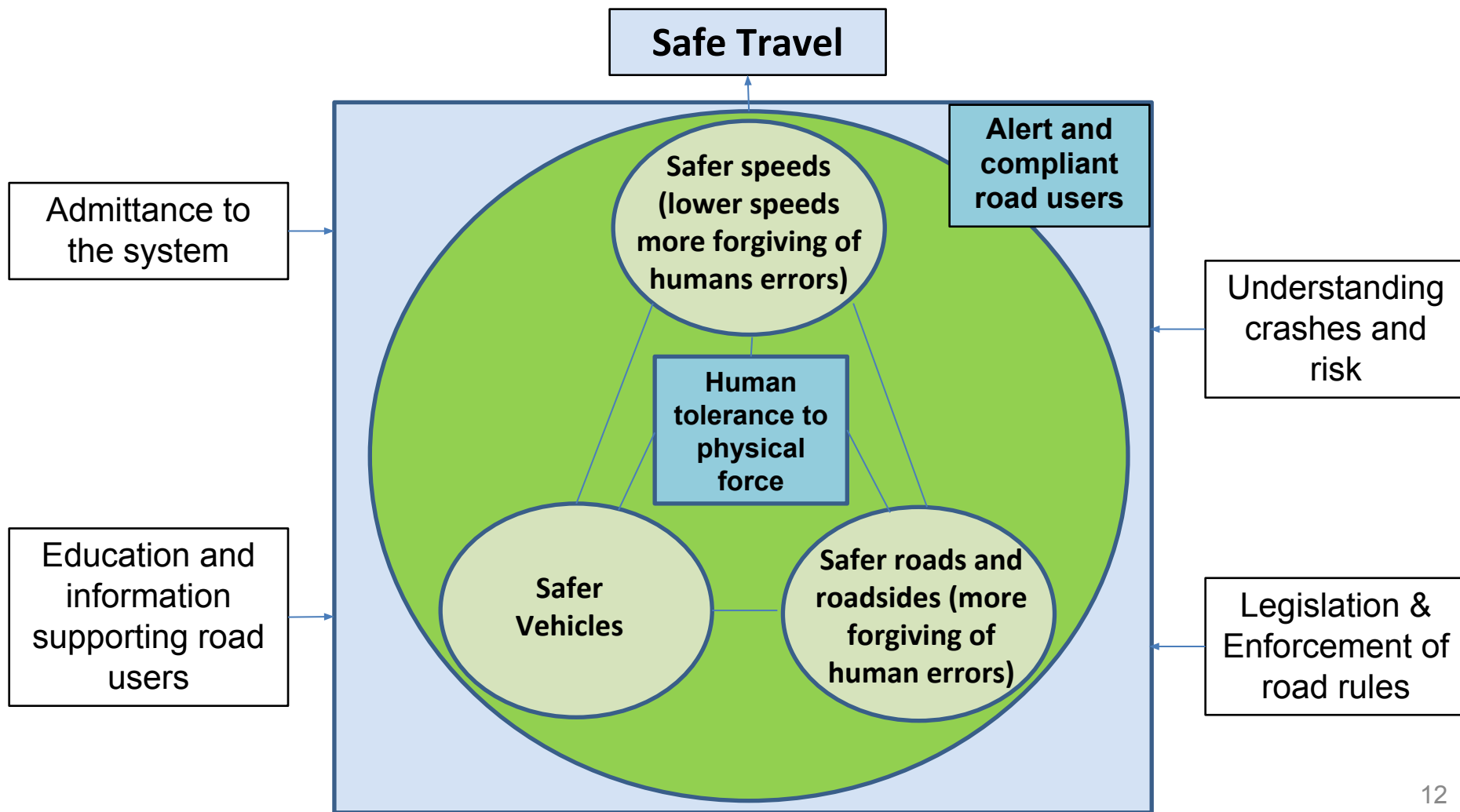
While the Safe System approach to road safety recognises the need for responsible road user behaviour, it also accepts that human error is inevitable.

It therefore aims to create a road transport system that makes allowance for errors and minimises the consequences - in particular, the risk of death or serious injury.

By taking a total view of the combined factors involved in road safety, the Safe System approach encourages a better understanding of the interaction between the key elements of the road system: road users, roads and roadsides, vehicles and travel speeds.



Safe System approach





What are the benefits for road users?

The Safe System approach **accepts that human error is inevitable**. It therefore aims to create a road transport system that makes allowance for errors and minimizes the consequences, in particular, the risk of death or serious injury.

The safe system aims to have alert and compliant road users and has three core components:

- **Safe roads and roadsides** - a transport system designed to make a collision survivable through a combination of design and maintenance of roads and roadsides.
- **Safe vehicles** - the design of vehicles and their safety equipment to include protective systems including electronic stability control, air cushions, etc.
- **Safe speeds** – the speed limit should reflect the road safety risk to the road users.



Safe System Principles

- **Human Factors** – people make mistakes, we will not solve the road safety problem simply by improving road users and the road transport system needs to accommodate this
- **Human Tolerance** – the finite capacity of the human body to withstand physical force before a serious injury or fatality can be expected is a core system design consideration
- **Forgiving Systems** – roads that we travel on, vehicles we travel in, speeds we travel at, and communities we live in need to be more forgiving of human error
- **Shared Responsibility** – everyone has a responsibility to use the road safely with organizations, businesses and communities taking responsibility for designing, managing and encouraging safe use of the road transport system



Evidence based interventions

- **Safer Road Users** – informing and educating users about safe use of the road, and taking action against those who do not comply with the rules
- **Safer Roads** – designing, constructing and maintaining roads and roadsides to reduce the risk of crashes, and minimise the severity of injury if a crash occurs
- **Safer Vehicles** – designing and maintaining vehicles to minimise the risk of crashes, and the severity of injury to motor vehicle occupants, pedestrians, and cyclists if a crash occurs
- **Safer Speeds** – setting speed limits that take into account the level of risk on the road network and the benefits of lower speeds in minimising the incidence and severity of injury in the event of a crash



Results-focused management

- Funding & resources allocation;
- Knowledge transfer;
- Research & development;
- Monitoring & evaluation;
- Legislation;
- Coordination;
- Promotion.

+

problems with securing political and public support and with involving the public in preventive actions

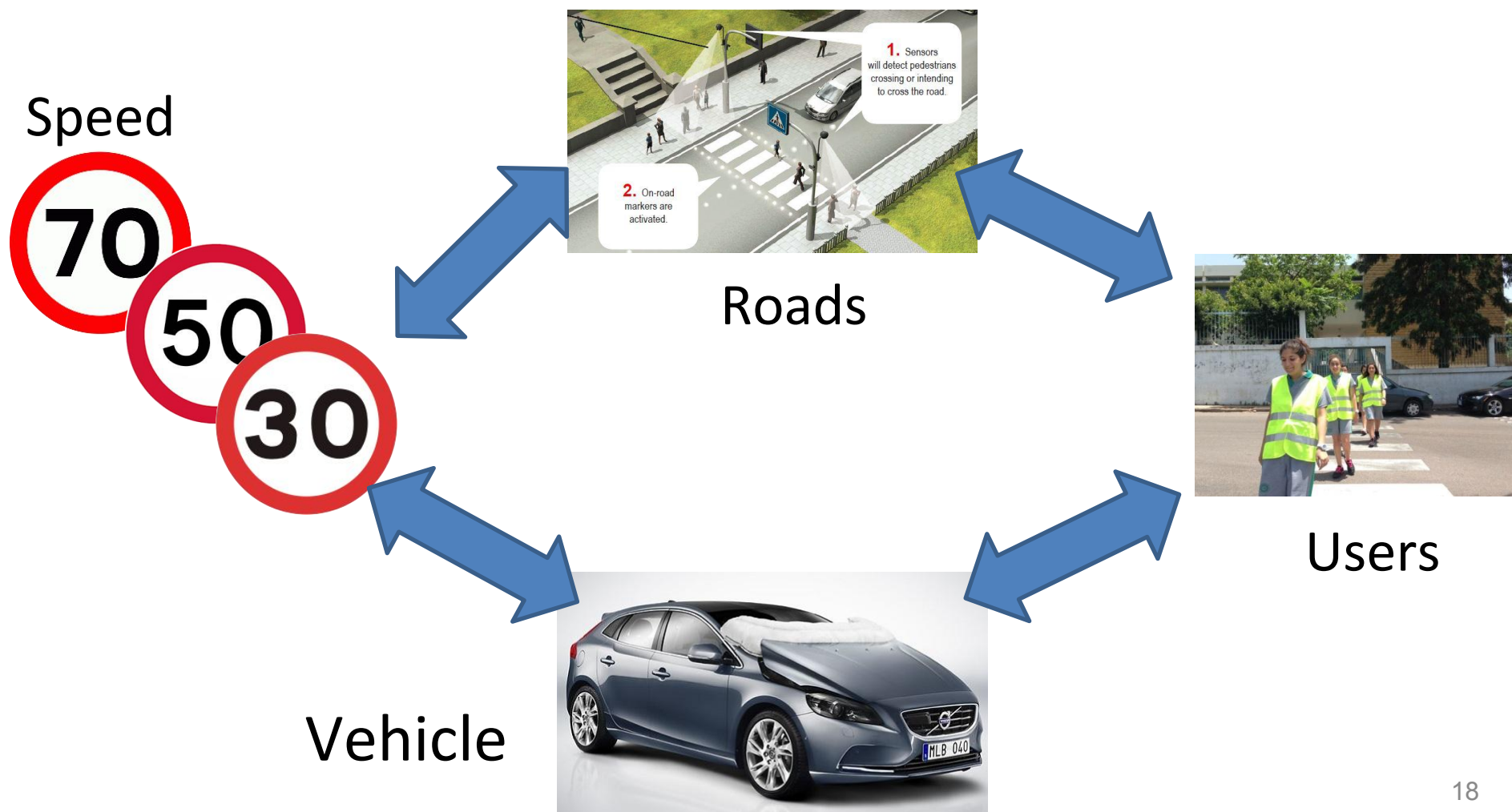


Key elements of road system

- **Roads and roadsides** - transport system designed to make a collision survivable through a combination of design and maintenance of roads and roadsides.
- **Vehicles** - the design of vehicles and their safety equipment to include protective systems including electronic stability control, air cushions, etc.
- **Safer Speeds** - the speed limit should reflect the road safety risk to the road users.
- **Users** – the road users educated and trained and encouraged to be alert to risk and compliant with the rules of the system.



Safe System Comprises ...





Safe System Comprises ...



- 5 ★ person
 - Belted
 - Compliant
 - Right speed



- In a 5 ★ car



- On a 5 ★ road



- With 5 ★ travel speed



Why is speed so important?

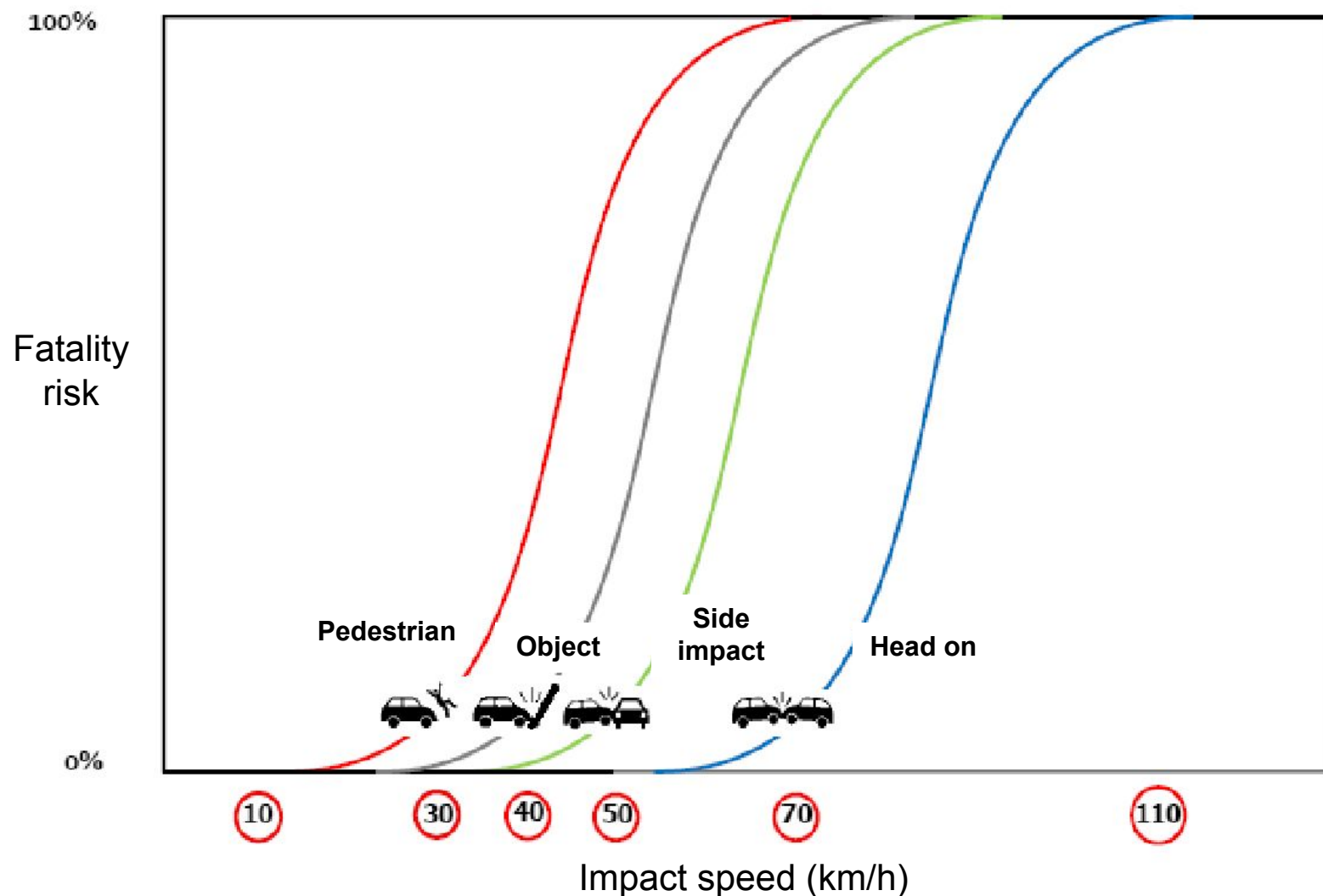
Achieving a Safe System of road travel is based on an understanding that the human body is vulnerable and unlikely to survive an uncushioned impact at a speed of more than 30 km/h.

Even relatively low speeds can kill or seriously injure unless the vehicle and the road and roadside environment take account of the physical vulnerability of all road users.

The main objective of the Safe System is to ensure that in the event of a crash, the impact forces released are within the boundaries of human tolerance and that no fatalities should occur and serious injuries are reduced.

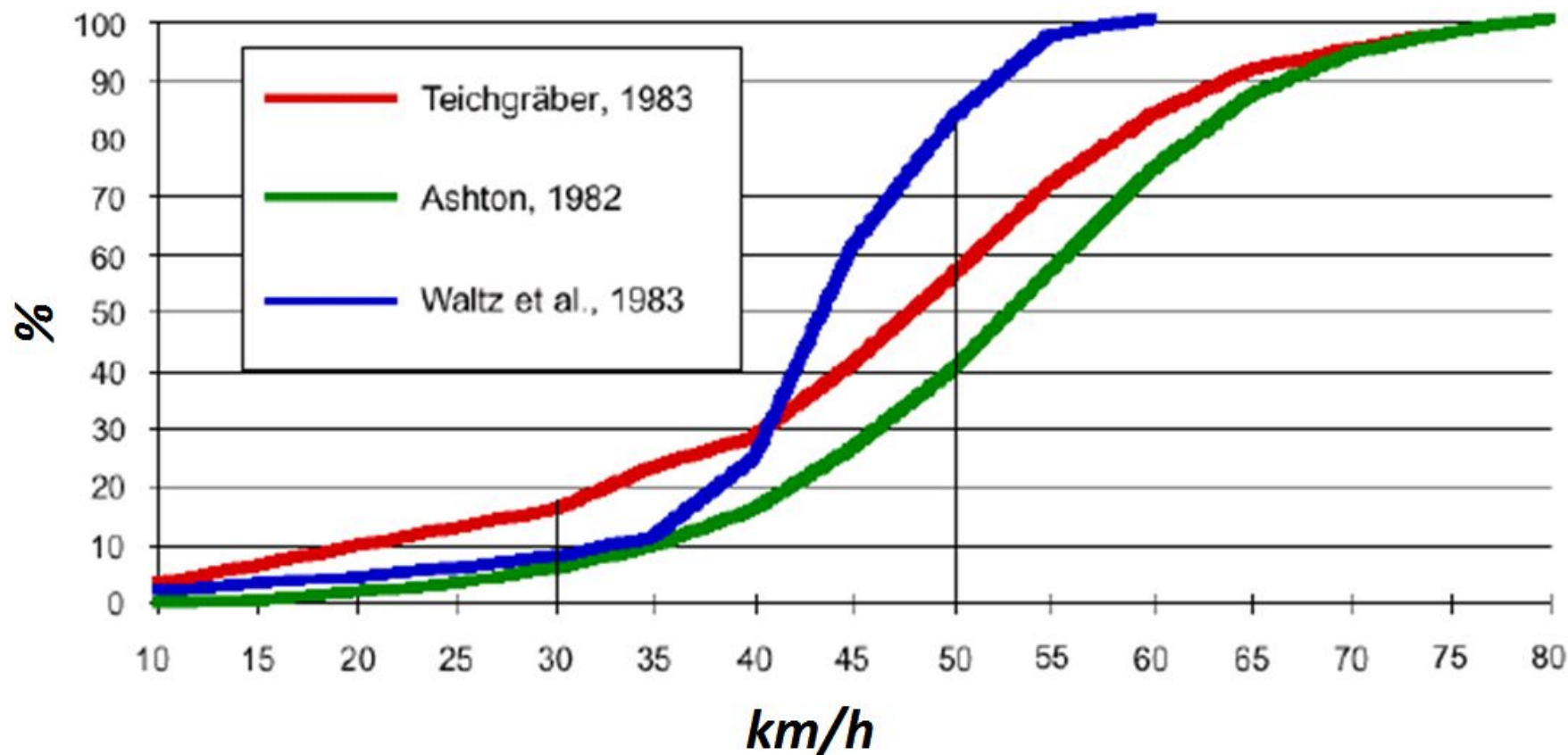


Why is speed so important?





Pedestrian risk (in %) of being killed at different impact speeds





Thank you for your attention!